

June Financial Review

July 23, 2012



101 Fluids and Combustion Facility, MIP & TSC



ZIN Manager: Michael Johanson

ZIN Engineering Lead: M.O'Toole

ZIN Operations Lead: T. Wasserbauer

ZIN Integration Lead: C. Rogers

NASA Program Manager: Tom St'Onge

NASA Project Manager: Bob Corban (Kevin McPherson)



SpaceDOC 101 encompasses the International Space Station (ISS) Fluids and Combustion Facility (FCF) Project and its initial payloads, Light Microscopy Module (LMM) and the Multi-user Droplet Combustion Apparatus (MDCA) have been launched and the flight units are installed on the ISS. The Flight units on the ISS, as well as the units on the ground (Ground Integration Units and the Engineering Development Units) need to be operated and maintained. This Delivery Order is for the operation of the FCF racks on orbit and on the ground, resolution of any anomalies, evaluation of trends, software upgrades, hardware obsolescence evaluation, new hardware development to support future capabilities, verification, and training the crew and operators on the hardware/software. Also, as new payloads are developed for the FCF, analytical modeling and engineering analysis of the interface will be required.



The CIR Flight Unit, along with MDCA, was delivered to the ISS by STS-126 (November 2008). The FIR Flight Unit along with the LMM were delivered to the ISS by STS-128 (August 2009).



Issue	Potential Impact	Action Plan	Resolution Date
FLEX2 - Igniter tip burnout	Unable to continue science test point operations	OCR for remove and replace of the igniter tip has been submitted. Waiting for ISS crew resource	July
FLEX - motor position error associated with the fuel reservoir dispenser #2	limits the ability to dispense fuel from the reservoir. Significant threat to near-term operations.	Testing shows that motor encoders are operating properly . A blockage in the fuel delivery system is probably cause. OCR for remove and replace of the dispenser #2 fuel needle assembly has been submitted	Aug

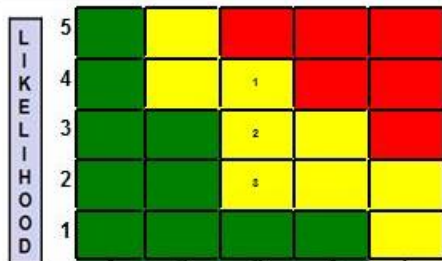
** No significant FCF, TSC or Integration Issues.*

- **FLEX2 Science Matrix**
 - Completed the FLEX2 Surrogate Fuel Matrix
 - Initiated the FLEX2 Quiescent/Convective Matrix
 - June total is 11 downlink test point ignitions
- **ACE Science**
 - Completed ACE console operator training
 - Completed FIR file maintenance operations
 - Installed flight release FCF-IOP-MP-FlighBundle-12-02 and LMM-FSAP-IPSU-LCB-FlightBundle-12-01 to FIR (ACE Updates)
- **Space X- 1**
 - Released the SpaceX-1 MIUL
 - Released the SpaceX-1 De-manifest Safety Data Package
 - Completed Bottle Fills (4)
 - Completed DCM-LCTF EMI test and Thermal Cycle Test. Initiated burn-in hrs
- Released Stowage Provisioning and Shipping Procedure
- Released FCF Maintenance Plan
- Completed EMI test for MDCA spare avionics Box
- Completed Thermal Cycle Test for MDCA Avionics, Flight GCIP, DCM-LCTF
- Continued Assembly of LMM Control Box
 - Conformal Coat Five DSP Motion Controllers (67215EFAB23743)
 - Fabricate/Assemble New Servo Motor Driver Board (67215EEAB23703)

2012 Deliverables List

101 Fluids and Combustion Facility, MIP, TSC, LMM, MDCA

Deliverable	Planned	Actual	Note
Smoke Detector spare	Feb-2012	4/2012	
ATCU Fan Assemblies (2) spares	Apr-2012	4/2012	
ATCU Fan Filter Electronics Box spare	Apr-2012	4/2012	
EEU spare	Apr-2012	4/2012	
GCIP flight unit	Jun-2012		Assembly and test completed except offgas test now planned for Aug
MDCA Avionics Package spare	Jun-2012		Assembly and test completed. Verification closure planned August
CIR Windows (2) spares	Jul-2012	3/2012	
LMM Control Box spare (No Environmental)	Jul-2012		Out of plan board vibe required. Assembly completed planned September
QD Lubrication Kit (if required)	Jul-2012		
IPSU spare - Remora	Sep-2012		
Focus Prism spare	Nov-2012		
DCM spares (2)	Nov-2012		
ICM spare	Nov-2012		
MDCA Color Camera spare	Nov-2012		
GIU LCTF	Dec-2012		
Common IAM spare	Dec-2012		



CONSEQUENCES

Criticality

L x C Trend

High

↓ Decreasing (Improving)

Med

↑ Increasing (Worsening)

Low

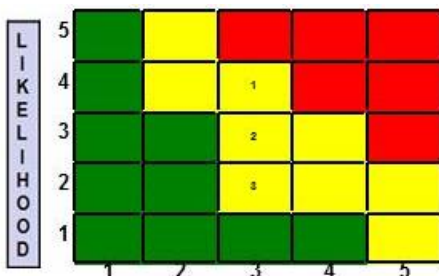
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★ New since last month

Risk Id	Risk Title	Risk Statement	L	C	Approach
FCFSE-025 → Technical O'Toole	DCM LCTF failure	Given that there is no spare DCM LCTF; then there is the possibility that we cannot accomplish full FLEX2 science.	4	3	Mitigate: Manifest DCM LCTF 2001 on SPACE-X1. Add procurement and assembly of a second spare LCTF DCM to the 2012 DO period of performance. Status: 01/11/12 - No updates at this time. 02/17/12 - DCM LCTF components have been procured and initial assembly has begun. 03/28/12 - The DOC (Disk On Chip) has been replaced per Zin MWO. Software updates are in the process. ECD: 09/28/2012
FCFSE-026 → Technical Beltram	LMM GIU does not fully emulate the flight unit	Given that the LMM GIU does not fully emulate the flight unit; the possibility exists that future LMM flight experiments will not operate correctly.	3	3	Mitigate: Plan is to review LMM GIU non-flight design issues, and add task to update LMM GIU to the next DO period of performance. Status: 12/21/11 - Task has been added to the DO to upgrade to LMM GIU. 01/11/12 - No updates at this time. 02/17/12 - The LMM GIU has been assessed and the upgrades needed to emulate the flight system have been identified. Additionally, microscope motor functions are in the process of being repaired. 03/28/12 - Risk has been reviewed and there are no changes to its status at this time. 04/23/12 - Currently preparing trouble shoot procedures for LMM motor functions. ECD: 07/02/2012
FCFSE-014 ↓ Technical Beltram	IOP removable hard drive shelf life	Given that the IOP removable hard drives have a limited shelf life; then there is the possibility that these hard drives won't work over time and the FIR and CIR racks will not be able to provide support for their payloads to perform science operations will occur.	2	3	Mitigate: Implement a procedure to re-format the hard drive on-orbit to minimize loss of magnetic field encoding data on the disk. Status: 04/23/12 - Currently on track for the development of the formatting procedure. ECD: 12/31/2012

Risk Matrix - FCF

101 Fluids and Combustion Facility, MIP, TSC, LMM, MDCA



CONSEQUENCES

Criticality

L x C Trend

High

Decreasing (Improving)

Med

Increasing (Worsening)

Low

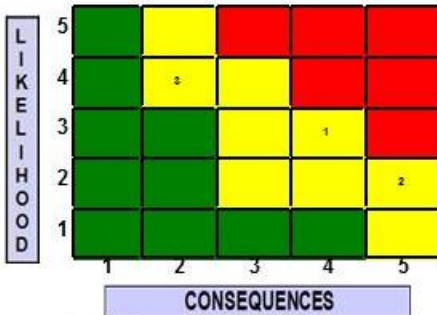
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Risk Matrix - FCF

101 Fluids and Combustion Facility, MIP, TSC, LMM, MDCA



Criticality

High (Red)
Med (Yellow)
Low (Green)

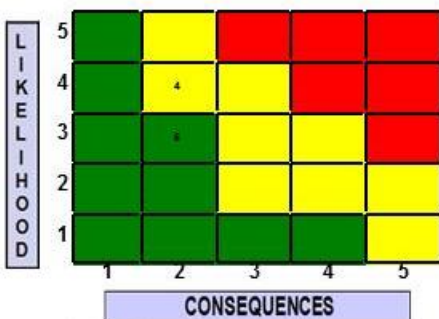
L x C Trend

↓ Decreasing (Improving)
↑ Increasing (Worsening)
→ UnChanged
* New since last month

Risk Id	Risk Title	Risk Statement	L	C	Approach
MDCA-011 * Technical O'Toole	FLEX-2J Deployment Validation	Given that we cannot verify multiple droplet deployments in a 1G environment there is possibility that not all science will be met	3	4	Mitigate: Develop a robust 1G validation program Status: ECD:
MDCA-007 → Cost O'Toole	Lack of on-orbit spare avionics box	Given that there is no flight spare MDCA avionics box on ISS and there are no plans or budget to build a flight or GIU MDCA avionics box; then there is the possibility that, if the MDCA avionics box becomes inoperable, a complete loss of the ability to obtain FLEX-2 science will occur.	2	5	Mitigate: A plan to build a flight spare avionics package is authorized under the current DO with delivery planned for the 4th quarter of 2011. Status: 08/24/11 - Still on schedule to deliver flight spare avionics box. 10/04/11 - The project is still targeting the flight spare avionics delivery in December of 2011. 11/15/11 - Delivery of the assembly is projected for February 1, 2012. Verification and manifest is expected to be included in the follow-on DO period of performance. 03/07/12 - Flight spare MDCA avionics box is in the process of being built per ZIN Tech MWO. 03/28/12 - Flight spare avionics box is tentatively scheduled for several environmental tests as follows: Vibe & EMI in May of 2012 and Thermal Cycle in June of 2012. 04/23/12 - Flight spare avionics box is in the process of being built. ECD: 07/31/2012
MDCA-012 * Technical O'Toole	FLEX-2J Droplet Size Repeatability	Given the tolerance on droplet reproducibility has not been demonstrated there is possibility that we will not meet the reproducibility requirement	4	2	Mitigate: Review science requirement with JAXA and determine the capability of the flight hardware to meet the science requirement. Status: ECD:

Risk Matrix - FCF

101 Fluids and Combustion Facility, MIP, TSC, LMM, MDCA



Criticality

High (Red box)

Med (Yellow box)

Low (Green box)

L x C Trend

⬇ Decreasing (Improving)

⬆ Increasing (Worsening)

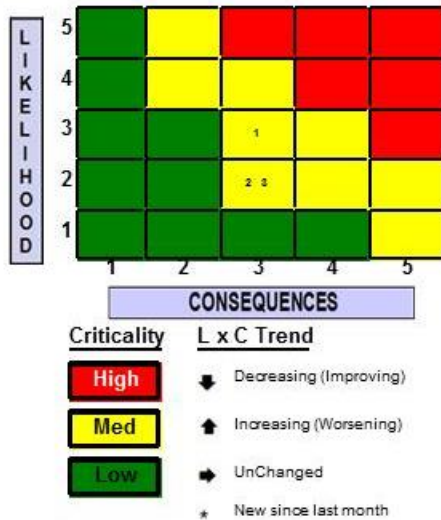
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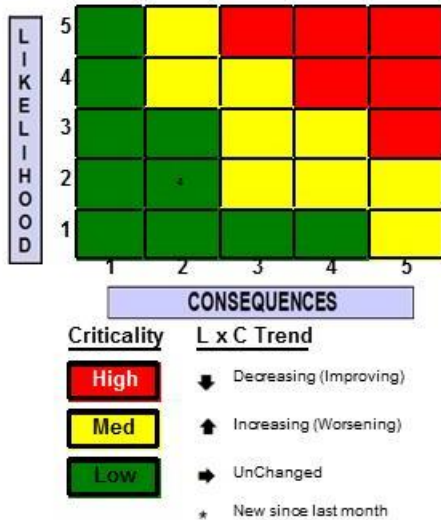
Risk Id	Risk Title	Risk Statement	L	C	Approach
MDCA-013 * Technical O'Toole	FLEX-2J Droplet Imaging Resolution	Given that the there is limited performance data for the droplet imaging camera at 60 frames per second there is possibility that we will not meet the resolution requirement	4	2	Mitigate: Review science requirement with JAXA and determine CIR h/w capability. Status: ECD:
MDCA-010 * Schedule O'Toole	FLEX-2J SRD not signed	Given that the FLEX2J SRD is not signed at PDR there is a risk that project cost and schedule will not be met.	3	2	Mitigate: Document requirements as understood via previous TIMs and coordinate with JAXA to obtain concurrence Status: ECD: 08/31/2012

Risk Matrix - FCF

101 Fluids and Combustion Facility, MIP, TSC, LMM, MDCA



Risk Id	Risk Title	Risk Statement	L	C	Approach
TSC-004 * Cost	Lack of support depth	Given that there is no more than 1 subject matter expert in the areas of TSC System administration, FCF Ground software, and FCF data post-processing, there is a risk that FCF will not be supported adequately to ensure mission success.	3	3	Status: ECD: 12/28/2012
TSC-002 * Technical	DICES III voice loop system obsolete	Given that DICES III system hardware is at end-of-life, there is a risk that voice loop services will not be available to support mission operations.	2	3	Status: ECD: 12/28/2012
TSC-003 * Technical	Video System Difficult to Support	Given that the Grass Valley video matrix and AMX video switch system uses an unmaintainable and undocumented configuration, there is a risk that all video channels may not be available to support mission operations.	2	3	Status: ECD: 12/28/2012



Risk Id	Risk Title	Risk Statement	L	C	Approach
TSC-001 * Technical	Stale TSC documentation and not up to date	Given that documentation has not been updated as physical changes are made at the TSC, there is a risk that troubleshooting and maintenance will not be properly performed.	2	2	Status: ECD: 12/28/2012

102 Acceleration Measurement Program (AMP)

Engineering Lead Jennifer Keller & Ray Pavlik

NASA Program Manager: Tom St. Onge

NASA Project Lead: Kevin McPherson / Bob Hawersaat



SAMS Objective:

- Provide acceleration measurement systems that meet the requirements of the researchers on board the International Space Station.
- SAMS measures the acceleration environment in the 0.01 to 400 Hz range for payloads.

MAMS Objective:

- Provide acceleration measurement system that measures the Quasi steady and vibratory acceleration data in the 0.00001 to 100 Hz frequency range on board the International Space Station (ISS) vehicle

PIMS Objective:

- Provide acceleration measurement data to Principal investigators who conduct scientific research on board the International Space Station.
- The SAMS acceleration measurement system provides the raw data that PIMS uses to provide analysis to the Principal Investigators. SAMS measures the acceleration environment in the 0.01 to 400 Hz range for payloads.



Milestone Schedule

102 AMP (SAMS, MAMS, PIMS)

WBS	Milestone	Start	Baseline	Projected	Actual	Schedule Variance
1.8.1	TSH-ES Spare Cable EA50033 (MSG) cable build	3/2011		4/2011		
1.8.2	SE cable (EA12303) cable build	4/2011		5/2011	6/2011	
1.8.3	TSH-ES Spare	1/2011		3/2012		
1.8.4	TSH-ES Spare Cable EA50035 (FIR) cable build	5/2011		3/2012		
1.8.5	TSH-ES Spare Cable EA50001 (CIR) cable build	6/2011		3/2012		

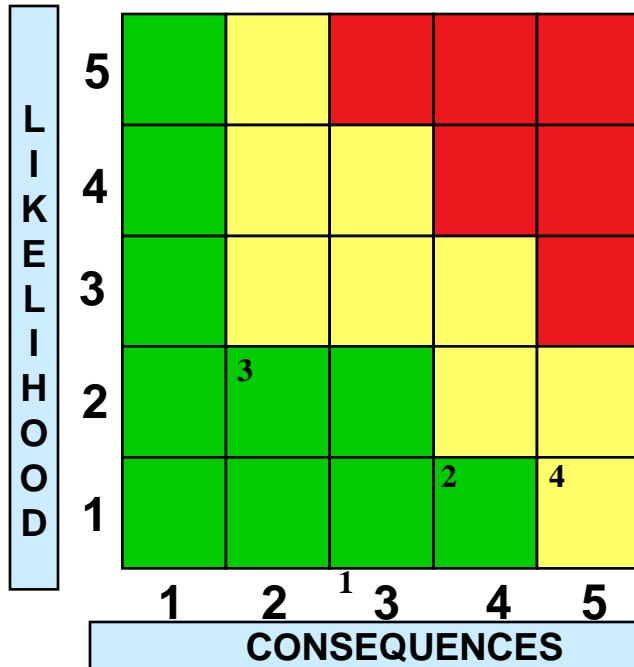
Issues and Concerns

102 AMP (SAMS, MAMS, PIMS)

Issue	Potential Impact	Action Plan	Resolution Date
Network issues onboard delaying EE-F05 boot process	EE-F05 not booting	Work with DMC to help determine network issues. In mean time, disconnect SE F04 from RTS/D1 and connect SE F02 to RTS/D1 to support MSG	Sensor moved in Sept. to support MSG. Work with DMC's is continual
5 Rack Rule restricting MAMS and SAMS operations	MAMS and SAMS unable to support CHIT requests for acceleration data support	Move SAMS ICU out of ER4 and into ER1 to help alleviate how many racks for MAMS and SAMS to minimally support customers (from 2 racks to 1 rack.)	Inc 22 when CADRE adds an additional PRO on console to support up to 7 racks - POD submitted OCR pod1all000369 "Update to G-4.1-1 Payload Rack Operations Constraint (Generic Payload Reg)" approved on June 23, 2009 to start with Increment 20, modifying the ground rule to allow SAMS as an exception when requested by Struc & Mech for a short period of time. This allows a little more flexibility and opportunity for SAMS under these circumstances.
Crew office cannot properly torque the SAMS MSG baseplate into the MSG WV	Not a good surface mount for the SAMS TSH-ES	1. ECO the SAMS AIDD to call out the torque values for the baseplate 2. Request in writing the issue and why it cannot be performed.	9/15/09 – telecon held with MSG. It was decided that the fasteners on the SAMS baseplate for the TSH-ES will not be torqued. Integrated Safety Hazards are being updated on the MSG side, and SAMS is clarifying a SAMS safety hazard. TSH installed in MSG and working with SODI. Crew procedures said to be hand tight.
ER1 RIC S/W Upgrade			Software upgraded the week of January 9 th . Waiting to watch behavior of the rack.
Long term budget for sustaining/sparing		1. Kevin working with Bob on POP charts for FY 2012	
Don Parrott	Staffing & funding		
PLMDM issues	Limits number of racks on at one time, so SAMS having hard time getting ops time in COL and JEM.	1. ISS Plans on upgrading PLMDM to resolve the limit	Because of other ISS issues, NET Jan 2012 timeframe
ER4 RIC issues	Not able to operate SAMS in ER4, therefore no data available in the JEM	1. Work with Express team to stay in the loop on when they may get recovery time.	Unknown.

Top Risks

102 AMP (SAMS, MAMS, PIMS)



Criticality	LxC Trend	Approach
High	Decreasing	M-Mitigate
Med	Increasing	W-Watch
Low	Unchanged	A-Accept
	New	R-Research

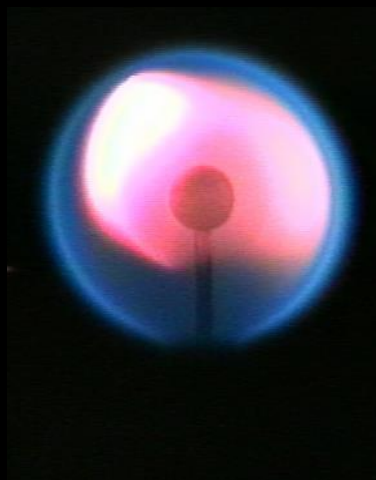
Approaches: Mitigate, Watch, Accept, Research

Risk ID	Risk Title	Risk Statement	L	C	Approach
DO102-1	TSH-ES wire size	Wire sizing could limit usage of the TSH-ES. The use of 12 gauge wire would increase the size of the TSH. Many power suppliers have 20 amp breakers.	1	2	Watch: Will address risk with inline breakers if a customer requires it. Not a problem for FIR or CIR. Status: Does not affect FCF or MSG. Will address when there is a user. Close date: Future User
DO102-2	Commanding Issue	NCR 237 identified: The laptop may lockup when commanding to the TSH-ES that is running at 400 Hz.	2	3	Watch: The system will need to be rebooted only. Alternative means to address this issue in future software builds will be considered. 400 Hz mode not a normal operating mode. Status: Waiting for funds to consider s/w fix Close date: On going
DO102-3	SAMS Sparing	SAMS PCS hardware not supported by the ISS program.	3	2	Mitigate: Ghosting function for hard drives in place. Laptop shells, spare hard drives and floppy drives have been set aside on ISS for SAMS use. Status: Need to configure one more set of spare hard drives Close date: 04/09
DO102-4	SAMS Fan Regulator	SAMS RTS Drawer #2 fan regulator frequency varies	2	4	Watch: Fan speed has shown the variable frequency for several months and has not shown any distinct changes in behavior over that period of time. Status: Need to configure one more set of spare hard drives Close date: 04/09

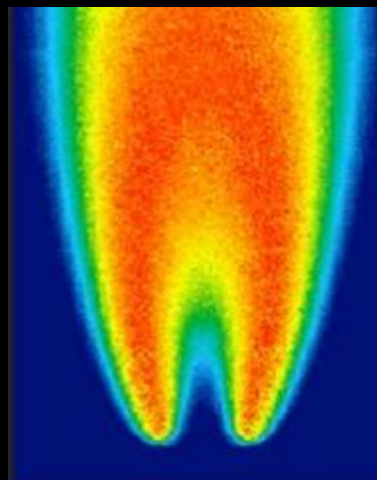
June 2012



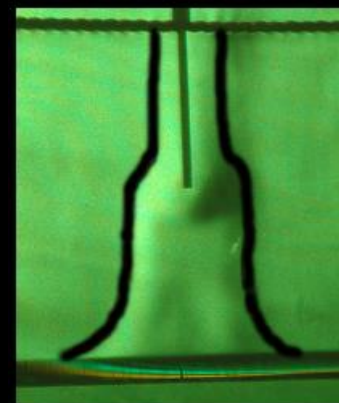
s-Flame
(drop test)



Flame Design
(drop test)



CLD Flame
(aircraft test)



2850 V

E-FIELD Flames
(1g schlieren)

Manager: Brian Borowski

NASA Program Manager: Tom St. Onge

NASA Project Lead: Mark Hickman

NASA Project Scientist: Dennis Stocker

SpaceDOC 110 encompasses the initial development phase of ACME including requirements and verification development and planning, flow system breadboard interface with existing FOMA breadboard and color camera trade studies to ultimately provide a new diagnostic capability for CIR. Work on Engineering Model design is included following completion of Preliminary Design Review in January of 2011.

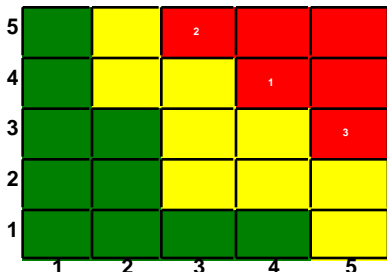
Issues	Potential Impact	Action Plan	Resolution Date
Coming out of the Phase 0/1 Safety Review there are some potential programmatic impacts involving materials, basic design elements and test matrices	Could result in changes to the design and/or test matrices	Project Scientist has been informed of areas of concern and will address and baseline the test matrix	4/12 Project Scientist has addressed the potential impacts. Decisions are now at a programmatic level
Following functional testing of the E-Field Subsystem and EMI testing of the same subsystem some requirement compliance issues have arisen with regard to rise times and energy levels	Unable to meet science requirements	Project Scientist has been informed of test results and is assessing the impacts to the test matrices with the PIs	9/12

- Successfully completed an Interim Design Review for ACME. Review intent was to cover project progress with a NASA review board between PDR and CDR
- Completed EMI testing of the E-Field subassembly. Found some issues with requirement compliance that are being worked with the Project Scientist
- Began build of EM Avionics Package
- Completing flight drawings for Color Camera Package

WBS	Milestone FY12	Credit	Start	Baselined	Projected	Actual	Scheduled Variance
1.1	Interim Design Review	100% package complete	May 2012	June 2012		June 2012	



Task Level Risk Assessment

L
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H
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D

CONSEQUENCES

Criticality

L x C Trend

High

↓ Decreasing (Improving)

Med

↑ Increasing (Worsening)

Low

→ UnChanged

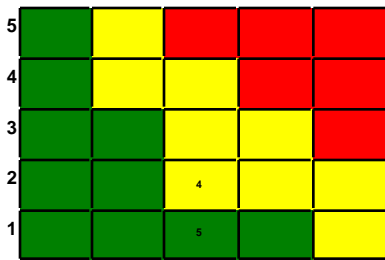
* New since last month

Risk Id	Risk Title	Risk Statement	L	C	Approach
ACME-021 ➡ Technical Mroczka	Inability to disassemble Mass Flow Controllers for Conformal Coat / Ruggedizing	Given that the Mass Flow Controllers cannot be fully taken apart to perform conformal coating and staking on the electronic boards; then there may be an incompatibility with elements of the chamber atmosphere including fuels, oxygen and diluent mixtures causing CIA electronics to fail.	4	4	Watch: This risk will be re-assessed after reviewing the results of the testing scheduled to take place in September 2012. Status: ECD: 09/28/2012
ACME-014 ↓ Technical Rogers	IPSU to IOP image transfer rates take too long	Given that the current data transfer rates from the IPSU to the IOP is severely limited, transfer of ACME data may take an unacceptable amount of time and may reduce obtainable science for the allotted operational time on board ISS.	5	3	Watch: Need to keep an eye on this and follow up with the CIR team to keep updated on transfer improvements. Status: 12/13/11 - The FCF team has improved transfer rates by utilizing both IOP hard drives. The FCF team needs to provide quantitative data transfer rates. 03/27/12 - Risk reviewed by the ACME team and no status updates at this time. 05/08/12 - ACME RMWG has reviewed this risk and there are no updates at this time. 06/12/12 - Risk was reviewed at the monthly ACME RMWG and there are no updates at this time. ECD: 12/31/2012
ACME-010 ➡ Technical Mroczka	CIA electronics and fuel mixture compatibility	Given that the CIA electronics is exposed to chamber atmosphere; then there may be incompatibility with elements of the chamber atmosphere including fuels, oxygen and diluent mixtures causing CIA electronics to fail.	3	5	Watch: This risk will be re-assessed after reviewing the results of the testing scheduled to take place in September 2012. Status: ECD: 12/25/2012



Task Level Risk Assessment

LIKELIHOOD



CONSEQUENCES

Criticality

L x C Trend

High

Decreasing (Improving)

Med

Increasing (Worsening)

Low

UnChanged

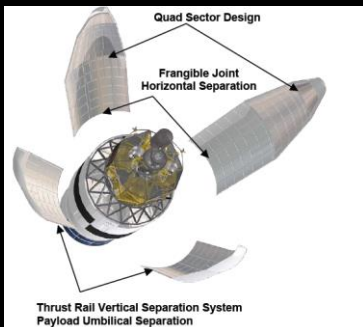
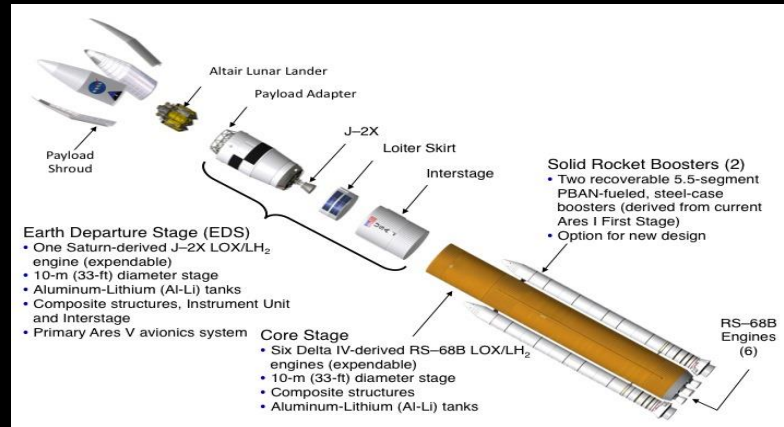
* New since last month

Risk Id	Risk Title	Risk Statement	L	C	Approach
ACME-008 ↓ Technical Gobeli	E-field emission exceedences	Given that there might be e-field exceedence emissions; then there is the possibility that the EMI requirement will not be met and ACME hardware would be adversely effected causing diminished science to occur.	2	3	Mitigate: The ACME team will be intensively working with the EMI lab to determine what if any EMI exceedences occur to meet its EMI requirement and minimize any impact on the hardware. Status: 1/11/11 Planned testing has been delayed due to funding. 11/23/10 No changes or updates at this time. 9/14/2010 No changes or updates at this time. 05/03/11 - 5/3/2011 - This risk will be on hold until the Engineering Model is completed. 05/31/11 - 5/31/11 - Nothing new to report. 02/14/12 - Still appear to be on target for test date. 06/12/12 - EMI testing has begun and should be completed by the end of June 2012. ECD: 05/31/2013
ACME-017 → Management Rogers	Lack of adequate ISS supplied Nitrogen	Given that it is not known how much ISS Nitrogen can be supplied and re-supplied for use by the CIR for ACME; then there is the possibility that Nitrogen will not be available for ACME and a loss of science will occur.	1	3	Watch: Awaiting the test point matrix to be developed to get a better estimate of required nitrogen. Status: 10/25/11 - Draft update of science matrix is in review. 12/13/11 - No updates at this time. Zin personnel are still awaiting the draft of the science matrix from the NASA Scientist. 01/10/12 - Still reviewing at the monthly ACME RMWG. 02/14/12 - No updates at this time. 03/27/12 - Risk reviewed by the ACME team and no status updates at this time. 05/08/12 - ACME RMWG has reviewed this risk and there are no updates at this time. 05/08/12 - Test point matrix has been completed and is in the process of being reviewed for Nitrogen needed from ISS. 06/12/12 - Risk was reviewed at the monthly ACME RMWG and there are no updates at this time. ECD: 12/31/2012

119 Ares V Payload Shroud Element (PSE) Project

ZIN Manager: Michael Johanson
ZIN Engineering Lead: Bill Dial

NASA Project Manager: Gerry Sadler



SpaceDOC 119 encompasses evaluation of potential manufacturing approaches focusing on the Heavy Lift Payload Shroud but not be limited to (e.g. can include other element composite dry structures). Approaches may include: existing composite manufacturing sites, MAF, and new sites. ZIN and our subcontractor Zero Point will identify needed composite manufacturing assets and capabilities to support current Heavy Lift Vehicle concept and associated requirements based on manufacturing assessments done by the NASA ESMD ACT project. The scope of the analysis shall include logistics and supply chain requirements.

Issue	Potential Impact	Action Plan	Resolution Date
None			

Milestone Schedule

119 Ares V Payload Shroud Element (PSE) Project

Milestone (Cal 10)	Baseline (Cal 10)	Projected	Actual	Schedule Variance
Payload Shroud Technology Development Plan	November 30, 2010	Nov 30, 2010	Nov 30, 2010	None
Preliminary Element Integration Assessment Report	January 15, 2011	Jan 15, 2011	Jan15, 2011	None
Manufacturing Implementation Plan	February 15, 2011	Feb 15, 2011	Feb 15, 2011	None
Final Element Integration Assessment Report	March 25, 2011	April 25, 2011	April 25, 2011	1 month no cost extension approved by Gerry Sadler
Provide a Basis of Estimate Bottoms Up Assessment of the Current SLS Shroud for metallic and composite 8.4 meter baselines.	June 6, 2011	June 6, 2011	June 6, 2011	None
Assessment of CPS Impacts on Payload Shroud	September 30, 2011	Sept 30, 2011	Oct. 13, 2011	Delivery slipped based on stop work due to lack of funding, slip was approved by Gerry Sadler
Fairing Basis of Estimate Updates 1. PPBE13 Update 2. Initial PPBE14 Update 3. Final PPBE14 Update	1. Oct. 30, 2011 2. May 30, 2012 3. Sep 30, 2012	1. Oct. 30, 2011 2. May 30, 2012 3. Sep 30, 2012		The PPBE schedule is determined by NASA and the dates of the deliverables are subject to change.
Analysis and Design Reports 1. SRR 2. SDR	1. Oct. 1, 2011 2. Feb 1, 2012	1. Feb 1, 2012 2. Feb 1, 2012		SLS SRR & SDR are NASA determined dates. They are currently planned to be combined and held Feb. 15, 2012.
Payload Fairing Evaluation: Test Plans and Procedures	15 day prior to testing			Work is being de-scoped
Delta IV Stage Integration Assessment	Jan 31, 2012	Jan. 31, 2012		Work is being de-scoped

Study Delivery Order – No risks



Project Manager: Chris Sheehan

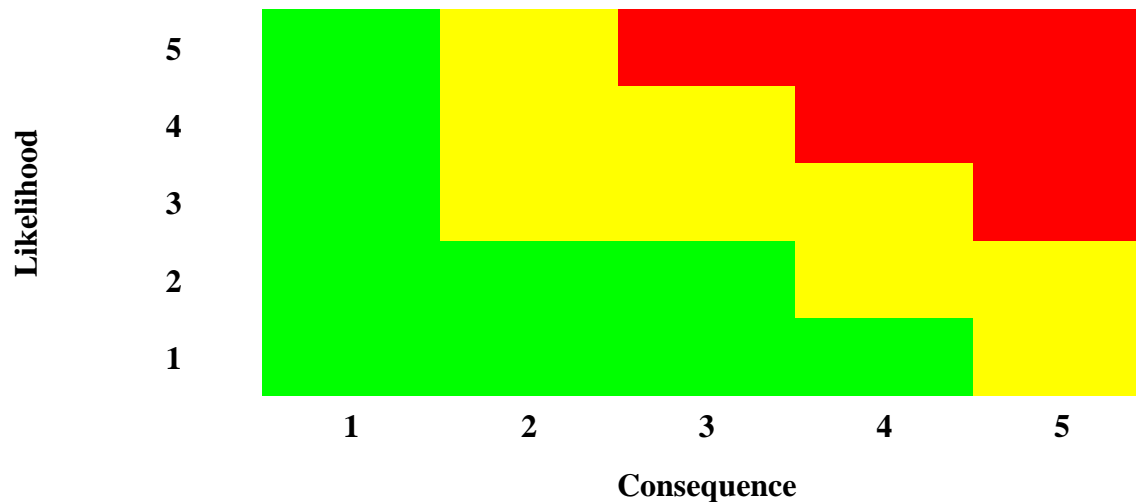


SpaceDOC 126 continues the work performed under SpaceDOC 113 to manufacture and flight verify the CSM/Glenn Harness as a crew preference item. Additionally, this delivery order carries drawing and documentation build information and materials research to allow for removal of the SDTO containment bag

EVM Milestone Schedule

126 Human Health Countermeasures (HHC)

WBS	Title	EVM Method	Start Date	End Date	EVM Plan
1.1	Management				
1.1.1	Project Management	LOE	6.01.11	5.31.12	8.3%/month
1.1.2	EVM/Cost Reporting	LOE	6.01.11	5.31.12	8.3%/month
1.1.3	Configuration Management	LOE	6.01.11	5.31.12	8.3%/month
1.1.4	Property Management	LOE	6.01.11	5.31.12	8.3%/month
1.1.5	Shipping and Receiving	LOE	6.01.11	5.31.12	8.3%/month
1.1.6	Purchasing	LOE	6.01.11	5.31.12	8.3%/month
1.3	Product Assurance				
1.3.1	Quality Management	LOE	9.14.11	5.8.12	12.5%/month
1.7	HHC Final Design and Fabrication	LOE	6.01.11	5.31.12	8.3%/month
1.8	System Assembly, Integration, Test and Launch	LOE	9.21.11	5.22.12	12.5%/month



NO RISKS IDENTIFIED AT THIS TIME

Trend Legend

⬆ Upward

⬇ Downward

➡ No Change

■ New

Issue	Potential Impact	Action Plan	Resolution Date
None	-	-	-

DO-128 Communications, Navigation, and Networking Reconfigurable Testbed (CoNNeCT-2)



ZIN Project Lead: Ray Pavlik
ZIN Software Lead: Jennifer Keller

NASA Project Manager: Diane Malarik
NASA Deputy Project Manager: Mike Zernic
NASA GRC PI: Rich Reinhart
NASA GRC Deputy PI: Sandy Johnson

- An on-orbit, adaptable, Software Defined Radios (SDR)/Space Telecommunications Radio System (STRS)-based testbed facility to conduct a suite of experiments to advance technologies, reduce risk, and enable future mission capabilities on the International Space Station (ISS).
- DO-128 Scope of Work includes:
 - Performing configuration management activities, including software.
 - Remaining development of the CoNNeCT Flight and Ground System Software.
 - Integration with the Payload Operations Integration Center (POIC) and SCaN-provided SN, NEN, and NISN.
 - Sustaining Engineering and Operations of the Flight and Ground System.
 - Experiment Integration and Operation

DO 128 Issues and Concerns

Issue	Potential Impact	Action Plan	Resolution Date
None			

- Subtask A CM/DM
 - Scanned and compiled the JPL SDR Flight Log Book
 - Reviewed, formatted, and released multiple Document, Process Plans, Change Requests, and NCRs
 - Supported GIU drawing updates
 - Writing the Software Configuration Administration Guide for the SCaN Testbed
 - Supported SCaN team with various mainline requests: sent specific file versions to requestors , created branches
- Subtask B SE&I and Experiment Integration
 - eFEP Rack
 - The software programming was completed and the rack turned over for modifications and testing. The modifications were completed and all components passed basic testing. During more extensive testing, the Harris EFEP failed local loopback via cables. A problem with one connector was found and repaired.
 - One month later after the eFEP rack was moved, during testing, the Harris eFEP was not functioning again. Troubleshooting indicated another cable connector problem. The failure was temporarily repaired by adjusting the torque on the connector. The decision was to replace the cables on the experimenter side of the rack. This will be done when time permits.
 - T.E.I
 - The work to modify the TEI's was completed and approved.
 - During preliminary testing of TEI #1, the Keithley switch failed to power up. The JPL Test team informed they had intermittent trouble with it powering up during testing. The unit was disassembled and troubleshooting showed a bad connection between the AC Line-In receptacle and fuse holder. The connection between the receptacle and fuse holder was physically modified so it had a solid connection. The unit was tested OK, reassembled and tested again. The unit has not had a problem since the repair.

- Subtask B SE&I and Experiment Integration (continued)
 - T.E.I (continued)
 - Both T.E.I.'s were tested, the modifications were successful and the units were then characterized. The command line text for computer control of the Keithley Switch system was written and tested OK.
 - GIU GPS Status
 - Completed the final design of the GIU GPS Systems.
 - Generated PRs for the GPS System Components.
 - Generated and submitted the GIU Safety Permit Revision required for the GPS System.
 - Served as Chairman for CONNeCT-ERB-002 for the GPS Antenna Installation. Conducted ERB review, summarized outcome and obtained concurrence from review board. Completed interim close out for this ERB. Final close out to occur later in Summer 2012 after antenna installation is completed.
 - Began a draft of the GPS System Test Procedures.
 - GIU Actions
 - Generated the MWO and Process Plan for ELC SCS No. 2 Power Supply and Data Logger swap out.
 - Managed the relocation the GIU GSE to their final locations.
 - Maintained the GIU Use Schedule.
 - Controlled the configuration of the GIU as per users' needs.
 - Assisted with Avionics/GD/APS characterizations, Avionics/JPL/APS characterizations, Avionics/Harris (w/TWTA)/APS characterizations, VNA TEI#1 characterizations, VNA TEI#2 characterizations, GIU / TSC Operations Training, GD Link (BER) Testing, Harris Link (BER) Testing.

- Subtask B SE&I and Experiment Integration (continued)
 - Avionics Characterization Test
 - Conducted a team meeting to review approaches for conducting an Avionics Characterization test. Obtained concurrence on approach to use a custom developed software task to mimic Experimenter's software to be run on Avionics.
 - Developed and obtained concurrence on a test plan for performing the Avionics Characterization test. Completed a MWO for the test.
 - Performed 4 tests, or approximately 50% of the test matrix points, of the Avionics Characterization test. Preliminary data review shows basic Avionics capability to support Experimenter software on the Avionics.
 - Supported review discussion of PLAN-0923, GIU Operational Guidelines Plan. Helped refine the documentation requirement table content.
 - Released new contamination control document, PLAN-0921, for formal review via CM process.
 - Performed physical inspection of returned-from-Japan ELC suitcase simulator. Noted several power cables had backed out of equipment rear panels. Re-cabled and then performed brief power on test which was successful. ELC suitcase simulator power supplies to be changed out to address out of calibration status.
 - Created CR to update the Experimenter's Handbook, GRC-CONN-PLAN-5006. CR incorporates changes to Harris SDR document list as well as minor editorial changes.
 - Worked with eRoom Administrator to develop basic structure for housing documents to be provided to approved Experimenters.
 - Supported one mission simulation test in order to develop sense for materials that will need to be incorporated into Experimenter's STEC Desk Handbook.

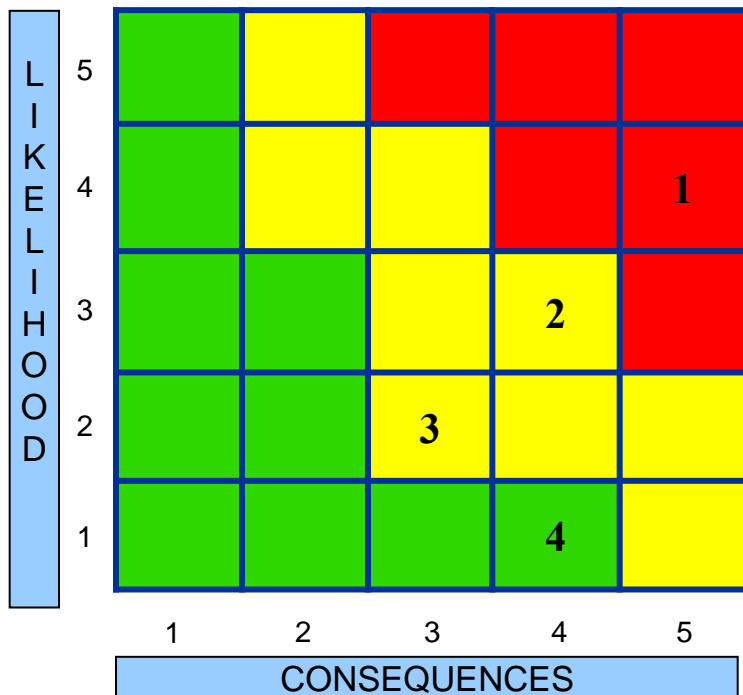
- Subtask C Flight & Ground Software
 - Avionics Characterization - Wrote utility and scripts to support Avionics Characterization testing - Tested - Loaded onto GIU - Supported trial run.
 - Continued work on the Avionics Scripting software and testing. The base capability has been thoroughly bench-tested. Now working on scripts, script libraries, and documentation specific to SCaN Mission Operations.
 - Assisted with documenting Off Nominal procedures.
 - Developed software schedule for remainder of the DO period of performance.
- Subtask D Mission Operations
 - Created a script, procedure, and briefing for Scenario 3. Interfaced with POIC to implement scenario simulation timeline. Functioned as GIU and Flight System commander, controller, SFEP operator, scheduler, and APS operator for the second POIC Scenario Session. A loopback test was run through WSC SFEPs by sourcing data from the GRC SFEP. This loopback test did not work properly, but the issue has been worked.
 - Completed a simulated TCR (TDRS Contact Request) and TSR (TDRS Service Request) for a specific Ka band access for the 6/8/2012 scenario. The specific TDRS pass access constraint was predicted to be very close to the TSR returned by JSC. The TSR was returned to the JSC pointers to complete the simulated SN scheduling. The resultant look angles and TRK file was generated for application in the scenario and it was shown afterwards that the difference in predictions (GRC to JSC pointers) was nominally 0.1 degrees and within 0.010 using two different GRC internal tools (STK and LynxCAT OB).
 - Continued planning and interfacing with POIC for the Pre-Launch Mission Simulation (7/12) . Initiated the development of the TCR and TSR operations, and simulated STK / TRK files for this activity.

Hardware/Software Deliverables

No.	Item Description	Planned Completion Date	Actual Completion Date	Note
a)	Subtask A –CM/DM: Configuration Management and Tracking System (CMTS)	December 31, 2012		Hardware
b)	Subtask C – Flt & Grnd SW: Verified Post-Ship Flight Software for subsequent upload to the Flight System	July 2012		Software – This has been rescheduled to December 2012.
c)	Subtask C – Flt & Grnd SW: Verified Ground Software required for JAXA Ground Processing	February 2012	February 2012	Software
d)	Subtask C – Flt & Grnd SW: Ground Software to support Mission Simulations	Q3 FY12	July 12, 2012	Software – Final Mission Simulation held 07/12/12.
e)	Subtask C – Flt & Grnd SW: Verified Ground Software, suitable for use during C/O & C	June 2012		Software – Additional changes requested by Mission Ops Team. New Date August 2012.
f)	Subtask C – Flt & Grnd SW: Verified Ground Software, suitable for use with Post-Ship Flight Software	July 2012		Software – This has been rescheduled to December 2012.
g)	Subtask D – Mission Ops: Control Center Equipment for use during Mission Simulations and Mission	Q3 FY12		Hardware – No additional equipment required to date.
h)	Subtask D – Mission Ops: Data Distribution Services Software	May 2012		Software – Moved to December 2012 in order to capture lessons learned from C&C.

DO 128 Risk Matrix Overview

STATUS AS OF: 5/31/12



LxC Trend	Rank	Approach	Risk Title
N	1	M	Underfunded Operations and Experiments Phase
↓	2	M	Experimenter Software Interface
N	3	M	Loss of Experienced Software Personnel
N	4	M,W	ELC HRDL Repair

Criticality	L x C Trend	Approach
High	↓ Decreasing (Improving)	M – Mitigate
Med	↑ Increasing (Worsening)	W – Watch
Low	→ Unchanged	A – Accept
	N New	R – Research
		C – Closed